

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

REMARKS

Claims 1-24 are pending in this application. In the Office Action mailed September 8, 2008 (hereinafter, "Office Action"), claims 1-24 were rejected. With this response, Applicant amends claims 1, 3-6, 9, 11, 13-14, and 16-24. To the extent these amendments constitute recapture of claim scope that was previously disclaimed, the Examiner is requested to revisit the prior art with respect to the present claims. Applicant respectfully traverses the rejections and requests reconsideration based on the following remarks.

In addition, Applicant does not necessarily agree with or acquiesce to the Examiner's characterization of the claims or the prior art, even if those characterizations are not addressed herein.

I. Claim Rejections under 35 U.S.C. § 101

In the Office Action, claims 19-23 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. See Office Action at 2. Applicant has amended claims 19-23 to restrict the claims to physical memories. Support for the amendments to claims 19-23 may be found in Applicant's Specification at, for example, para. [0028], "...machine-executable instructions may be stored in a memory...and executed by circuitry..."; and para. [0029], "Embodiments of the present invention may be provided, for example, as a computer program product which may include one or more machine-accessible media having machine-executable instructions that, when executed by one or more machines such as a computer, network of computers, or other electronic devices, may result in the one or more machines carrying out operations in

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

accordance with embodiments of the present invention. A machine-accessible medium may include...floppy diskettes, optical disks, CD-ROMs...RAMs...or other type of media/machine-readable media suitable for storing machine-executable instructions." Accordingly, no new matter is introduced by the amendments to claims 19-23.

II. Claim Rejections under 35 U.S.C. § 102(e)

In the Office Action, claims 1-5 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Publication No. 2004/0117669 (hereinafter, "Wilson"). See Office Action at 3. Additionally, claims 6-24 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6948082 (hereinafter "Gschwind"). *Id.* at 4.

To establish that a prior art reference anticipates a particular claim under 35 U.S.C. §102, "each and every element of the claim" must be found "either expressly or inherently described, in a single prior art reference." See M.P.E.P. § 2131, quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the...claim." *Id.* quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 11226, 1236 (Fed. Cir. 1989). Wilson does not anticipate Applicant's claims 1-5 since Wilson does not disclose each and every element of claims 1-5. Likewise, Gschwind does not anticipate Applicant's claims 6-24 since Gschwind does not disclose each and every element of claims 6-24.

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

A. Wilson Does Not Anticipate Applicant's Claims 1-5

Applicant has amended claim 1 so that it now recites:

A method comprising:

monitoring one or more sensor outputs, each of the one or more sensor outputs measuring a power consumption property of a chip; and
recording a total time that each of the one or more sensor outputs indicates an existence of the power consumption property at a corresponding predetermined value.

Support for the amendment may be found, for example, at para. [0016], "[a]t block 304, circuitry 126 may record a time that each of the one or more sensor outputs 108A, 108B, 108C, 108D indicates the existence of the power consumption property at a corresponding measurement...the recorded time may be cumulated," as well as in Fig. 3 of Applicant's Specification. Accordingly, no new matter is introduced by the amendments to claim 1.

Wilson does not anticipate Applicant's claims 1-5 since Wilson does not disclose each and every element of claims 1-5. With regard to Applicant's independent claim 1, Wilson does not disclose at least the element "recording a total time that each of the one or more sensor outputs indicates an existence of the power consumption property at a corresponding predetermined value." The Examiner cites paragraphs [0006], [0018], [0020], and [0023] and Fig. 3 of Wilson in support of his contention that Wilson does disclose the above specified element. See Office Action at 3. Neither the cited portions nor Wilson as a whole, however, support such a contention.

In paragraph [0006], Wilson discloses a method of "reducing the heat dissipation of a microprocessor" which "includes measuring the temperature of a location on or

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

near a microprocessor and then comparing the measured temperature with a reference temperature..." See Wilson at para. [0006]. But Wilson teaches measuring and comparing of temperature values without ever recording a total time when the measured value has reached a predetermined value. Therefore, Wilson does not disclose "recording a total time" as recited in Applicant's claim 1.

Paragraph [0018] of Wilson refers to a figure that presents "a simplified block diagram of a computer system" including a microprocessor and related components. See Wilson at para. [0018]. Paragraph [0020] of Wilson refers to measuring the temperature near a microprocessor and discloses that "a temperature sensor can be utilized" to perform the measurement. *Id.* at para. [0020]. However, neither paragraph discloses the "recording a time" element as recited in Applicant's claim 1.

Lastly, the Examiner cites paragraph [0023] and Fig. 3 of the Wilson Specification in support of his contention that Wilson discloses the "recording a total time..." element of Applicant's claim 1. See Office Action at 3. Paragraph [0023] of the Wilson Specification refers to Fig. 3 and states that Fig. 3 "presents a plot of the temperature measured by a microprocessor temperature sensor over a period of time." See Wilson at para. [0023]. Paragraph [0023] also refers to a "reference temperature," *y*, that represents "a target operating temperature for the microprocessor." *Id.* At time "x", paragraph [0023] further explains that "the measured temperature, shown as curve 310 is equal to the reference temperature "y", shown as line 320." *Id.* Although the intersection of the curve representing a plot of measured temperatures over time and the line representing the reference temperature may reveal a *time* when the measured temperature equals the reference temperature, this does not constitute a disclosure of

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

the element of "recording a total time..." as specified in Applicant's claim 1 because Wilson does not disclose making a **cumulated** record of the time during which a sensor indicates an existence of the power consumption property at a predetermined value.

For at least these reasons, Wilson does not anticipate Applicant's claim 1.

Therefore, the rejection under 35 U.S.C. §102(e) of claim 1, as well as claims 2-5, which either directly or indirectly depend on claim 1, should be withdrawn.

B. Gschwind Does Not Anticipate Applicant's Claims 6-24

Gschwind does not anticipate Applicant's claims 6-24 since Gschwind does not disclose each and every element of claims 6-24. In the following subsection, Applicant first addresses independent claims 6, 9, 14, 19, and 24 and the dependent claims 7, 8, 10-13, 15-18, and 20-23, which either directly or indirectly depend therefrom. In a subsequent subsection, Applicant additionally addresses the Examiner's contention that Gschwind anticipates dependent claims 8, 12, 13, 17, 18, 22, and 23 under principles of inherency.

1. Applicant's independent claims 6, 9, 14, 19, and 24 and dependent claims 7, 8, 10-13, 15-18, and 20-23 which either directly or indirectly depend therefrom

Applicant has amended independent claim 6 so that it now states: A method for analyzing operation of a chip executing an application, the method comprising:

monitoring one or more parts of the application;
obtaining event data from a sensor attached to the chip, the event data including one or more times that one or more sensor outputs of the sensor indicates an existence of a power consumption property of the chip being at least a corresponding predetermined value as measured at the one or more sensor outputs; and

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

for a first part of the one or more of the parts of the application being monitored, correlating the event data with one or more instruction addresses associated with the first part of the application.

Support for the amendments may be found, for example, at para. [0026] of Applicant's Specification: "...performance collector 118, 218 may sample an instruction address at the part of the application 120 being currently executed. The instruction address may correspond to one or more lines of code, and/or a specific module of the application." Accordingly, no new matter is introduced.

Applicant's independent claim 6 states in relevant part, "[a] method for analyzing operation of a chip executing an application, comprising: monitoring one or more parts of the application..." Gschwind does not anticipate Applicant's claim 6 because Gschwind does not disclose at least the claim element "monitoring one or more parts of the application, or correlating event data with one or more instruction addresses associated with the first part of the application" as recited in Applicant's claim 6. The Examiner cites to paragraphs within Gschwind in support of his contention that Gschwind does disclose the above specified claim element. See Office Action at 4. Neither the cited portions nor Gschwind as a whole, however, support such a contention.

First, the Examiner cites to col. 3, lines 41-46 of Gschwind which states, "the term 'sensor means' includes apparatus for counting instructions executed per unit time and other indirect methods of measuring temperature and /or power..." Even assuming *arguendo* that counting instructions executed per unit time constitutes a disclosure of "monitoring one or more parts of the application," it does not constitute a disclosure of

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

"correlating event data with one or more instruction addresses associated with the first part of the application," as is additionally required by Applicant's amended claim 6.

Second, the Examiner cites to col. 4 lines 21-24 of Gschwind which states, in relevant part, "software can be written to adapt to an expected loss in processor performance when adequately notified and adapt behavior to ensure graceful degradation." See Gschwind at col. 4, lines 21-24. The Examiner also cites to col. 4, lines 41-46, "[w]hen a power sensor...indicates that a first reference value c1 has been exceeded, it triggers a notification event 320 to software, and software adapts software algorithms and parameters to reduce the power of the system..." *Id.* at lines 41-46. These statements refer generally to notifying and using software in managing a thermal crisis and not to monitoring one or more parts of an executing application, or correlating event data with one or more instruction addresses associated with a part of an application.

Third, the Examiner cites to col. 5, lines 10-44 of Gschwind, which discloses, "[s]oftware can respond to the notification event by adapting its behavior immediately...deferring adaptation to a later time...or ignor[ing] a notification event..."; that the notification event "can be...refined to contain information about particular chip regions...that have reached or exceeded a certain thermal threshold..."; and that software can be adapted by "disabling the execution or reducing the execution frequency of at least one algorithm" or substituting "at least one (power saving) algorithm for another algorithm..." See Gschwind at col. 5, lines 10-44. Once again, software that merely reacts to or participates in the reduction of burden on the

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

processor does not obtain one or more instruction addresses for the part(s) of the executing application, as recited in claim 6.

Fourth, the Examiner cites to col. 8, lines 50-57, of Gschwind which states, in relevant part, "[i]n a software application, algorithms can be implemented to provide a variety of operation modes with differing power dissipation levels, e.g., algorithms implementing a performance optimized mode, a high-resolution mode...and one or more modes optimized for lower power operation..." See Gschwind at col. 8, lines 50-57. Since the implementation of software applications to assist in power dissipation is unrelated to the notion of monitoring an application executing on the processor, Gschwind at col. 8, lines 50-57, fails to support the Examiner's contention that Gschwind discloses the claim element "monitoring one or more parts of the application" as specified in Applicant's claim 6.

Lastly, the Examiner cites to col. 9, lines 52-61, of Gschwind, which corresponds to claim 1 of the Gschwind Patent:

A computer system comprising an integrated circuit CPU, and at least one software program, in which said CPU includes sensor means responsive to a thermal property of said integrated circuit for asserting a first notification event; and said software program includes instruction means responsive to said first notification event for substituting at least one corresponding power-saving algorithm for an algorithm executed by said software program to reduce the thermal load imposed by said software program on said CPU. Gerschwind at col. 9, lines 52-61.

Once again, claim 1 of the Gschwind Patent, discusses both the notification of a software application and the software application's participation in reducing processor load or otherwise managing the thermal crisis. But there is no disclosure of "monitoring one or more parts of the application" or "correlating event data with one or more

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

instruction addresses associated with the first part of the application," as recited in Applicant's claim 6. Using a mechanism such as an event to notify software of a thermal crisis so that it may respond appropriately does not require the software to obtain instruction addresses corresponding to parts of the software. For example, as Gschwind itself explains the notification event may be represented by polling a register, with either the operating system or the application program being responsible for periodically polling the register.

Applicant has demonstrated above that neither the cited portions of Gschwind nor Gschwind as a whole discloses "monitoring one or more parts of the application" or "correlating event data with one or more instruction addresses associated with the first part of the application," as recited in Applicant's claim 6. Consequently, the rejection of claim 6 under 35 U.S.C. §102(e) should be withdrawn. Independent claims 9, 14, 19, and 24, although different in scope from claim 6, recite elements similar or identical to claim 6. For at least the reasons stated above with respect to claim 6, therefore, the rejection of claims 9, 14, 19, and 24 under 35 U.S.C. §102(e) should be withdrawn. Additionally, for at least the reasons stated above, claims 7, 8, 10-13, 15-18, and 20-23 should not be rejected under 35 U.S.C. §102(e) since they either directly or indirectly depend from claims 6, 9, 14, and 19.

2. Applicant's Dependent Claims 8, 12, 13, 17, 18, 22, and 23

Examiner contends that Gschwind anticipates dependent claims 8, 12, 13, 17, 18, 22, and 23 under principles of inherency. Applicant's claim 8 states "[t]he method of

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

claim 6, wherein the power consumption property comprises voltage drop." To support its contention that Gschwind anticipates claim 8, the Office Action states:

As per claim 8, Gschwind discloses that the power consumption property comprises voltage drop [col. 3, lines 41-46; col. 4, lines 21-24, 41-46; col. 5, lines 10-44; col. 8, lines 50-57; col. 9, lines 52-61; *inherent to the system* as the power consumption directly or indirectly depends on voltage supply]." Office Action at 5 (emphasis added).

When relying on the theory of inherency, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." M.P.E.P. § 2112(IV) quoting *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (Emphasis in original). Here, the Examiner has not provided the requisite "basis in fact and/or technical reasoning." *Id.* Further, the determination that voltage drop is a power consumption property does not necessarily flow from the teachings of Gschwind, as required under inherency.

In *Ex parte Levy*, referred to above, Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon. The reference did not directly state that the end product balloon was biaxially oriented but did disclose that the balloon was "formed from a thin flexible inelastic...biaxially oriented synthetic plastic material." *Ex parte Levy*, 17 USPQ2d at 1462. The examiner argued that the balloon in the reference was inherently biaxially oriented but the Board reversed on the ground that the examiner did not provide technical reasoning to support the conclusion of inherency. As in *Ex parte Levy*, the Office Action here merely cites to portions of the Gschwind specification that do not directly state that voltage drop is a power consumption property. The Office Action accompanies these citations with the conclusory remark

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

"inherent to the system as the power consumption directly or indirectly depends on the voltage supply." See Office Action at 5. Here, as in *Ex parte Levy*, therefore, the Examiner has failed to provide the requisite basis in fact or technical reasoning to support a finding of inherency.

Additionally, the determination that voltage drop is a power consumption property does not necessarily flow from the teachings of Gschwind, as required under inherency. The Examiner cites col. 3, lines 41-46; col. 4, lines 21-24, 41-46; col. 5, lines 10-44; col. 8, lines 50-57; and col. 9, lines 52-61, in support of his inherency argument. However, col. 3, lines 41-46, is the only part of Gschwind cited that bears at all on the question of whether Gschwind inherently discloses voltage drop as a power consumption property. It states, in pertinent part:

...[t]he term "sensor means" includes apparatus for counting instructions executed per unit time and other indirect methods of measuring the temperature and/or power, as well as apparatus for measuring temperature directly and apparatus for measuring power dissipation (e.g. measuring current draw at a known voltage). Gschwind at col. 3, lines 41-46.

Even assuming *arguendo* that Gschwind's disclosure of "indirect methods of measuring...power" is analogous to Applicant's "power consumption property" as used in Applicant's claim 8, Gschwind's reference to "indirect methods of measuring...power" does not constitute a disclosure of *all* such methods of measuring power because "a prior art reference that discloses a genus still does not inherently disclose all species within that broad category" but must be further examined to see if it discloses the claimed species. See M.P.E.P 2112(IV) quoting *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367, (Fed. Cir. 2004). Here, Gschwind discloses the broad category of "indirect methods of measuring temperature and/or power" but does

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

not, when examined, disclose voltage drop as a particular "species" within the broad category. Thus, a determination that voltage drop (as a species) falls within the category of "power consumption property" does not necessarily flow from the teachings of Gschwind. Gschwind, therefore, does not anticipate Applicant's claim 8 under principles of inherency.

Dependent claims 12, 17, and 22 recite elements similar to claim 8, and were similarly rejected as anticipated by Gschwind under the theory of inherency. Therefore, for at least the reasons stated above with respect to claim 8, claims 12, 17, and 22 are also not anticipated by Gschwind. The rejection of claims 8, 12, 17 and 22 under 35 U.S.C. § 102(e) should therefore be withdrawn. Additionally, for at least the reasons stated above, claims 13, 18, and 23 should not be rejected under 35 U.S.C. §102(e) since they depend from claims 12, 17, and 22, respectively.

Application No. 10/815,567
Attorney Docket No. MP1534
FHFGD Ref. No.: 10368.0003-00000

CONCLUSION

In view of the foregoing remarks, claims 1-24 are in condition for allowance.
Accordingly, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

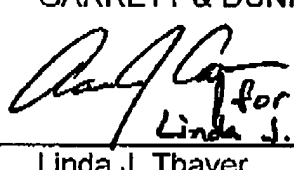
Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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